

ADDITIONAL MATERIALS TOWARD A MONOGRAPH OF THE GENUS
CALLICARPA. XIII

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CALLICARPA LONGIFOLIA Lam.

Additional & emended bibliography: Wall. in Roxb., Fl. Ind., ed. 1 [Carey & Wall], 1: 409 & 481. 1820; E. D. Merr., Philip. Journ. Sci. 30: 426. 1926; Moldenke, Phytologia 20: 490 (1971) and 21: 42, 45, & 48--55. 1971.

Additional illustrations: Rumph., Herb. Amb. 4: pl. 59. 1743.

Maheshwari (1963) says that this plant is "grown as a hedge plant in gardens" at Delhi. The corollas are described as "purple" on Bunnak 280, Chien 6024, Cuadra A.1007, Evangelista 923, and R. Ferreyra 8911, "pinkish-purple" on Suvarnakoses 841, "rose-purple" on Chand 7677, "purplish-red" on Steward & Chao 451, "rose-purple to lavender" on Chand 6274, "red" on Lau 177, "pink" on Gressitt 964, "pinkish" on Larsen, Santisuk, & Warncke 3410, "violet" on K. Larsen 10267, "pale-violet" on Villamil 144, "lavender" on M. K. Clemens 10125 and F. A. McClure 3195, "bluish-white" on Fryar 3984, "pinkish-white" on Boonchuai 1125, "white to pale-pink" on Hoogland 5006, and "white" on Brass 3969, 27278, & 29348, Lam 2049, Royen 3004, and Thomsen 664. Liang 66029 represents a very narrow-leaved form.

Sprengel, in his 1825 work, regards C. lanceolaria Roxb. as a distinct species and places C. japonica Thunb. in the synonymy of C. longifolia, but in his 1828 work correctly regards Thunberg's plant as a distinct and valid species. Beissner, Schelle, & Zabel (1903), on the other hand, place C. longifolia in synonymy under C. japonica! Schauer (1847) reduced C. japonica to synonymy under C. longifolia. Li (1963) gives a "C. pilocalyx Clark" as a synonym of C. longifolia, but by this he unquestionably means C. psilocalyx C. B. Clarke, which is a distinct and valid species. The Callicarpa acuminata Roxb. cited as a synonym of C. longifolia by Schauer (1847) is actually C. nudiflora Hook. & Arn., while the C. adenantha R. Br., also cited by him, is C. candicans (Burm. f.) Hochr.

Kanehira & Hatusima (1942) feel that C. formosana Rolfe "does not seem to be distinct from this polymorphous and widely distributed species [C. longifolia]", but with this concept I cannot agree. Dop (1932) regards C. dentata Wall. and C. virens Reinw., each only "in part", as synonyms of C. longifolia. Bean (1951) regards C. longifolia as a synonym of C. japonica var. angustata Rehd., but it is only in "sensu Hemsl." that this is true. The Callicarpus oblongifolia ♂ acuminatissima Hassk. is C. pedunculata R. Br.

Li (1963) reduces C. kotoensis Hayata and C. japonica var. kotoensis (Hayata) Masamune to synonymy under C. longifolia, saying "Hayata says of his C. kotoensis as 'near C. pilocalyx Clark and C. longifolia Lamk., but differs from both by the larger flowers and less hairy leaves' When compared with large series of C. longifolia specimens from all over tropical Asia, the Lanyu plant cannot be specifically separated". I regard both names as synonymous with C. japonica var. luxurians Rehd. Kanehira (1936) regards C. antaensis Hayata as a synonym of what he calls C. kotoensis.

The C. albida Blume, C. attenuata Wall., C. lanceolaria Roxb., C. longifolia Auct., C. longifolia L., C. longifolia Roxb., C. longifolia var. lanceolaria C. B. Clarke, C. longifolia var. lanceolaria (Roxb.) C. B. Clarke, C. oblongifolia Hassk., C. roxburghiana Roem. & Schult., C. roxburghiana Schult., and Callicarpus oblongifolia Hassk., included in the synonymy of the typical form of C. longifolia Lam. by various previous authors (including myself), are now regarded by me as representing f. floccosa Schau., which see.

It should be noted here that the C. americana accredited to Blanco and referred to in the synonymy of C. longifolia is actually a synonym of C. formosana Rolfe, that accredited to Lamarck, to Roxburgh, and to Willdenow belongs in the synonymy of C. americana L. (a valid species), that ascribed to Loureiro is C. candicans (Burm. f.) Hochr., that ascribed to Sessé & Mociffo is C. pringlei Briq., and that ascribed to Thunberg is C. japonica Thunb.; the C. cana accredited to Dalzell & Gibson is actually C. tomentosa (L.) Murr., that credited to Gamble is C. macrophylla Vahl, that of Linnaeus, of Sprengel, and of Vahl is C. candicans (Burm. f.) Hochr., and that ascribed to Wallich is in part C. longifolia and in part C. pedunculata R. Br.; the C. cuspidata of Roxburgh is C. pedunculata R. Br., while that ascribed to Bakhui-zen van den Brink is in part C. longipes Dunn and in part C. rubella Lindl.; the C. dentata credited to Pavon and the Sessé & Mociffo is Cornutia grandifolia (Schlecht. & Cham.) Schau., that of Roth is C. pedunculata R. Br., and that of Roxburgh is C. candicans (Burm. f.) Hochr.; the C. japonica ascribed to the younger Linnaeus is C. japonica Thunb., that ascribed to Matsumura and to Miquel is C. japonica var. luxurians Rehd., that credited to "Hort. ex Pritzel" is C. rubella Lindl., while that ascribed to "Hort. ex Moldenke" is in part C. japonica and in part C. rubella; the C. longifolia accredited to Bentham, to Hance, and to "sensu Mori" is really C. longissima (Hemsl.) Merr., that ascribed to Diels is C. bodinieri var. giraldii (Hesse) Rehd., that ascribed to Hooker is C. brevipes (Benth.) Hance, that credited to "sensu Hemsley" is C.

japonica var. angustata Rehd. and "sensu Li" is C. japonica var. luxurians Rehd., that ascribed to "Auct.", to Linnaeus, and to Roxburgh is C. longifolia f. floccosa Schau., while that credited to Hemsley is in part C. bodinieri var. giraldii and in part C. japonica var. angustata.

Similarly, the C. purpurea ascribed to "Hort. ex Moldenke" and to Van Houtte is a synonym of C. rubella Lindl., that of A. L. Jussieu is C. dichotoma (Lour.) K. Koch, and that of Nakai is C. japonica Thunb., and the C. tomentosa credited to Hooker & Arnott, to Willdenow, and to "sensu Matsumura" is C. kochiana Mak., that ascribed to König is C. macrophylla Vahl, that accredited to Lamarck and to Linnaeus "ex Sprengel" is C. candicans (Burm. f.) Hochr., that ascribed simply to Linnaeus is C. erioclona Schau., that ascribed to Linnaeus "ex Willdenow", to Murray, and to "(L.) Santapau" is C. tomentosa (L.) Murr. [a valid species], that of Vahl is as yet unidentified, while that credited to Bakhuizen van den Brink is in part C. arborea Roxb. and in part C. integerrima Champ.

Vernacular names recorded for C. longifolia are "antao-murasaki", "avóravi", "bagiha", "bĕbĕtih kinana", "bĕbĕtik kinana", "bĕning-bĕning", "callicarpa à longues feuil", "chupal", "chupal kechil", "chukin", "dama bĕsoi", "gambiran", "kajoe modang attarasa", "kajoe séran", "kapiriet", "karat bĕsi", "katoempang", "katoempang bener", "katumpang", "keling-kahan", "kĕmĕniran", "khow tok", "khu-kwai-lek", "kikatumpang", "ki toempang", "koamoora", "lang-blättrige Schönbeere", "lo kop ngan", "longleaf beautyberry", "long-leaved callicarpa", "mĕniran oetan", "mĕniran sapi", "moeniran", "nagaba-murasaki", "nasi-nasi", "papalain", "phlu yaun bai lek", "sekudara", "setampo", "simadgimbadjon", "si se", "songka", "songka kampong", "sulap", "tama", "tampah bĕsi", "tampal bĕsi", "tampang bĕsi", "tampang besi puteh", "tampoh bĕsi", "tampoh besih", "tampong bĕsi", "tapah bĕsi", "tibabási", "tígau", "tobaybási", "tulang besi", and "white-fruited tampang besi". The names "mĕniran oetan" and "tampal bĕsi" are applied also to C. candicans (Burm. f.) Hochr.

It is worth noting here that Lamarck's original description of C. longifolia (1785) is often incorrectly dated "1783".

Because of the great importance of Schauer's treatment of this taxon and the various interpretations which have been accorded it since that time, it is worthwhile to repeat his discussion here: "C. longifolia (Lam. dict. 1 p. 562), undique glanduloso-punctata ceterumque vero pube stellatâ magis minusve farinoso-tomentosa aut subglabrata, foliis membranaceis lanceolato-oblongis lanceolatisve utrinque attenuatis brevipetiolatis longe acuminatis serrato-denticulatis, cymis multifloris divaricato-dichotomis confertiusculis convexis pedunculo petiolum subaequante folio multoties brevioribus, calyce brevi 4-costato ore truncato brevissime 4-mucronulato.) In Indiâ orientali usque in Japoniam. Folia 6 poll. circ. longa, 2 poll. lata, penninervia, venosa,

plana, supra viridia vix nitidula, subtus pallidiora, utrinque subtus vero magis punctis resinosis flavis dense consita. Calyx semilineam longus. Cor. calyce jam duplo jam vero non nisi dimidio longior. Stam. exserta, antherarum connectivo et sulco faciali dense glanduloso-punctatis (v. s. in h. DC., Nees, Lucae aliorq.)

"C. subglabrata, ramulis cum inflorescentiae ramulis foliorumque reti utrinque pube stellatâ farinosis interdum subglabratis calyce foliorumque adulatorum paginis glabris. -- In Indiâ orient. e. gr. prov. Silhet (Wall.! cat. no. 1829), in Javâ (Bl.! Jungh.! Zolling.! pl. jav. no. 156! et 223!), in Philippinis (Cuming.! n. 1330), in Japoniâ (Zolling.! pl. jap. n. 349). C. longifolia Lam. l. c. et ill. t. 69 f. 2, Bot. reg. t. 864! Hook. exot. fl. 1 p. 133! C. Japonica Thunb. fl. jap. p. 60. C. lanceolaria Roxb.! fl. ind. 1 p. 395."

Miquel's original description of his C. lanata β uberior (1856) is "foliis e basi cuneata elliptico-oblongis, acumine haud abrupte terminatis, semi pedalis.....Sumatra."

Merrill (1912) comments that the Cuming 1330 collection from the Philippines, cited by Schauer in the above quotation, certainly does not agree well with the original description of C. longifolia and "to me does not appear to be closely allied to Lamarck's species". He therefore makes it the type collection of C. dolichophylla Merr., and with this disposition I fully agree.

When Schauer's two named forms were regarded as separate from the typical form of the species, the following key was proposed and used in the annotation of a considerable number of herbarium specimens in many widespread herbaria:

1. Leaf-blades glabrous beneath or practically so, no stellate hairs on the lamina of the lower surface; hairs, if present, simple, or stellate only on the midrib.....C. longifolia.
- 1a. Leaf-blades more or less stellate-floccose beneath.
 2. Leaf-blades very sparsely stellate on the lower surface, chiefly on the midrib and larger venation.....C. longifolia f. subglabrata.
 - 2a. Leaf-blades more densely stellate on the lower surface, on the lamina as well as on the venation.....C. longifolia f. floccosa.

This separation, however, has not proved to be practical and I now regard Schauer's f. subglabrata to be equivalent to the typical form of the species, as, indeed, it was originally proposed by him. His f. floccosa, then, is the only one of his two forms now accepted as worthy of being maintained. It was Hochreutiner (1934) who first pointed out that Schauer's form "subglabrata" was actually "Varietas typica speciei" and not a separate taxon.

The Hainan material cited below has, in general, the leaf-blades completely glabrous. Other material is merely subglabrous on the lower surface, with no stellate hairs on the actual lamina, the hairs (when present) being mostly simple, or the

stellate hairs are confined to the midrib.

Callicarpa longifolia is employed as a hedge plant in parts of India, and is also used as a fish-poison. Its bark is used by the Japanese on the Johnstone River, in Queensland, as a substitute for the betel leaf when chewing the Areca nuts with lime. Lam (1924) reports that it is also used to check dysmenorrhea. Heyne (1917) has this to say: "Rumphius geeft den naam sanka....opvoor zijn Mamanira alba....., welke nog niet met zekerheid is geidentificeerd en beschrijft dien als een struik, niet boven een man hoog, wassende op magere velden, in het kreupelbosch en in verlaten tuinen. Van de wortels koken sommigen een drank tegen buikloop. De bladeren dienen als kraamzuiverend middel en, fijngevreven met rijst en wat djinten in azijn gekookt, ter bevochtiging van omslagen voor - of tot het verdrijven van - harde gewellen. Het gebruik van de bladeren van C. longifolia, dat mij te Buitenzorg werd opgegeven, komt hiermede overeen: zij zouden m. l. de medicijn wezen voor wonden en zwellingen, die maar niet beter willen worden. Ook de toepassing door Ridley...vermeld, dat de bladeren worden gebizigt tegen koliek, vindt men bij Rumphius terug in het gebruik van de wortels.

"Nog twee mijner aantekeningen maken melding van inwendig gebruik als geneesmiddel (een van een afkooksel en een van een koud aftreksel van de gevreven bladeren), zoodat het verwondering baart, dat deze plant zoo giftig is voor visschen als volgen moet uit Indische Vergiftrapporten No. 201, indien tenminste de opgegeven wetenschappelijke naam juist is. Men leest daar, dat op Siao de bladeren van den tama worden gebizigd om de visschen te doodden, die bij eb in het rif zijn achtergebleven. Daartoe worden de bladeren of fijngestampt in het water geworpen, of aan de steenen van het rif gekneusd, zoodat het sap zich met het zeewater vermengt. De visschen zouden onmiddellijk bedwelmd geraken en zich gemakkelijk laten vangen. Hetzelfde geval doet zich echter voor bij een andere (nog niet bekende) Callicarpasoort, door Rumphius (IV, bl. 124) onder den naam van Frutex ceramicus beschreven als een heester, op Ambon onbekend, doch op Banda als kajoë ceram in de hoven geplant als vischbedwelmd middel. Hij zegt, dat men de bladeren stampt in een korfje doet en afgedekt een nacht laat staan. Men gaat daarmede naar plaatsen, waar bij aflopend getij water is blijven staan en strooit het, al wrijvend totdat het schuimt, op het water; de visschen komen daardoor dood boven drijven. Voor de menschen en overige wezens is echter, zegt Rumphius, deze plant onschadelijk, want de wortel wordt als medicijn inwendig gebruikt, de bladeren worden door bokken en schapen afgegraasd en spreeuwen en andere vogels eten de vruchten!"

Pammel, on the authority of Greshoff, also records this species as a fish-poison. Uphof (1968) says that it is "Used for poulticing in fever and colic among the Malays".

It should be noted here that the type collection of C. javanica is Zippelius s.n. from Java and that of C. attenuifolia is Elmer 13536 from Mindanao, Philippine Islands. The Wallich 1835.1, ci-

ted below, and collected in 1822 on Penang Island, is a cotype of C. attenuata Wall., the other cotypes being an Ahern and a Jack collection not seen by me. The basis of C. tomentosa Thunb. is the Thunberg s.n. specimen cited below and deposited in the herbarium of the Naturhistoriska Riksmuseum in Stockholm, while that of C. longifolia var. acuminatissima is Ploem s.n. from Java deposited in the Buitenzorg herbarium.

Kuntze (1891) says of his C. longifolia var. pubinervis: "Folia subtus in nervis pubescentia ceterum glabra, sed glandulis punctiformibus munita. Java, verbreitet. Der Beschreibung nach gehört auch var. lanceolaria Clarke hierher, aber lanceolaria Roxb. wird leaves very hoary underneath beschrieben. Unter var. subglabrata verstand Schauer noch var. japonica OK. (Thbg. 1784), foliis glaberrimis." I am designating Kuntze 5166 in the Britton Herbarium at the New York Botanical Garden as lectotype of this variety because this is the only one of the five specimens in Kuntze's herbarium labeled as this variety by him which has the Latin description placed by him after the name; it was collected at Ngalindung, Java, at an altitude of 3000 feet, on June 23, 1875.

Lindley & Paxton (1853) also comment on the error made by Schauer (1847) in uniting C. japonica Thunb. with C. longifolia, and point out some of the obvious differences between the two taxa, stating that in C. longifolia the cymes are smaller, the calyx is firm and fleshy, and the calyx-teeth more conspicuous, and that it is "a southern plant, much more tender" than C. japonica.

Chopra, Badhwar, & Ghosh (1965) report C. longifolia from the Nicobar Islands. They claim that var. lanceolaria (Roxb.) C. B. Clarke differs only in having the leaves narrower and thinner, "glabrate and densely minutely gland-dotted beneath when mature!" This, however, is a misinterpretation of that taxon, for, as Kuntze pointed out, Roxburgh's original description calls for the leaf-blades to be "very hoary underneath". In my opinion, it belongs in the synonymy of f. floccosa Schau. The "var. lanceolaria" in the interpretation of Chopra, Badhwar, & Ghosh is said by them to occur plentifully in central Bengal and in the Khasi Hills up to an altitude of about 3000 feet and that "it likely possesses fish-poison properties". These same authors describe the mature leaves of C. longifolia as "beneath so closely fulvous stellate-villous that few of the glands are visible", but obviously this applies not to the typical form of the species but to f. floccosa only. It would seem, therefore, that what they regard as typical C. longifolia is really f. floccosa, while what they regard as var. lanceolaria is actually the typical C. longifolia. They refer to the fruit as a "berry", but it is actually a drupe.

Maheshwari (1963) reports that at Delhi the species blooms

from September to November and fruits from January to March. He cites Maheshwari 663, taken from cultivated material growing in the Talkatora Gardens of Delhi.

Bakhuizen van den Brink (1921) describes C. longifolia as "A slender shrub, branchlets, cymes and petioles almost glabrescent; leaves lanceolate, minutely denticulate-serrulate to almost entire, upper side glabrous when adult, lower side almost glabrous, except on the nerves; cymes slender, lax, rather long petioled; calyx scarcely hairy or glabrous; corolla rose or whitish, scarcely pubescent outside; ovary densely glandular, not hairy." He comments about the f. subglabrata and f. floccosa: "It is not possible to distinguish distinctly the numerous varieties, which exist between the above-mentioned two extreme forms."

Domin (1928) describes, but does not name, a "forma inflorescentia valde laxa, divaricata, iteratim dichotoma excellens" from Queensland, based on his unnumbered collection from "bei Yarraba in den die Bachufer begleitenden Regenwälder bis 550 m emporsteigend", collected in January, 1910. A note by C. T. White on Brass 3969 from Papua says "almost the same as much Queensland material under C. longifolia". Koorders (1912) tells us that C. longifolia is found over "Ganz Java: Von 0--1700 m. ü. M. im lichten Regenwald gemein aber zerstreut".

Junell (1934) notes that "Auch bei C. longifolia habe ich einigemale beobachtet, dass die Teilung des Zentralkerns von Bildung einer Querwand begleitet ist". Dop (1932), in speaking of C. bracteata Dop, says: "Cette espèce est voisine du C. longifolia Lam. Elle s'en distingue aisément par les pédoncules des cymes beaucoup plus longs, les bractées foliacées. La longueur du pédoncules la rapprocherait du C. longipes Dunn de Chine et de Hongkong; mais les feuilles longuement atténuées, la calice à dents très petites, l'éloignent nettement du C. longipes à feuilles arrondies ou cordées à la base et à calice divisé jusqu'au milieu."

A wood sample accompanies R. S. Williams 2116. The Teijsmann s.n. [Boeroe Kajeli] specimen, cited below, is interesting because it consists only of complete leaf-skeletons! The R. Ferreyra 4076 collection from Lima, Peru, is doubtfully placed here since the collector avers that its fruits were red and that it grew in a stony habitat, with no hint that it represents cultivated material.

Vidal y Soler (1885) cites Cuming 1330 from the Philippine Islands, but this number is the type collection of C. dolichophylla Merr., as has been pointed out previously.

Domin (1928) cites Domin s.n. [Harvey's Creek, XII.1909] & s. n. [Yarraba, I.1910] from Queensland. Bentham & Mueller (1870) cite only a Dallachy s.n. [Rockingham Bay] from Queensland. Apparently this was the only Australian specimen of this species known to them. They describe it as "leaves....green and nearly glabrous or sprinkled with very short hairs above, more copiously

tomentose and glandular underneath but usually green or very slightly rusty or whitish." This description definitely points to *f. floccosa* Schau. rather than to the typical form of the species.

Koorders (1912) cites Pulle 3119 from Java. Bakhuizen van den Brink (1924) cites Atasrip 44, Lam 2049, and Thomsen 664 from New Guinea. Lam (1914) cites Elbert 3000 & 3064 from Celebes, Elbert 1864 from Lombok, and Grundler 4183 & 4199 from Sumbawa, while in his 1924 work he cites Ledermann 6597, 6836, 9226, & 11547a and Schlechter 14303 from Northeastern New Guinea and Kraemer s.n. [1909] from New Ireland. King & Gamble (1908) cite the following material from Malaya: Johore: G. King s.n. Langkawi Island: Curtis 2134. Malacca: Griffith 6039, Maingay 1191. Penang: King & Stoliczka s.n., Wallich 1835. Perak: King's Collector [Kunstler] 80 & 239, Stortechini 1214. Selangor: Curtis s.n. Singapore: Cantley 120, Hullett s.n., Lobb s.n., Schomburgk 54, G. Thomson 44, Walker 207. Cultivated, Singapore: Deschamps s.n.

Chang (1951) cites C. I. Lei 114, McClure 8036, and nos. 25599, 35399, 35683, 43543, 60928, 61204, 61314, 61385, 64465, 66542, & 72820 of collectors and/or herbaria whose names he gives only in Chinese characters.

Material of *C. longifolia* has been misidentified and distributed in herbaria as *C. acuminata* H.B.K., *C. angusta* Schau., *C. cana* L., *C. caudata* Maxim., *C. dichotoma* (Lour.) K. Koch, *C. longifolia* var. *floccosa* Schau., *C. macrophylla* Vahl, *C. pedunculata* R. Br., and *C. psilocalyx* C. B. Clarke.

On the other hand, the Ahern's Collector s.n. [Herb. Philip. Forest Bur. 1888], distributed as *C. longifolia*, is actually *C. angusta* Schau.; Teijsmann 3525 H.B. is *C. arborea* Roxb.; Bulock s.n. is *C. bodinieri* Lévl.; Giraldi s.n. [Monte Kin-qua-san, 10. VII.1897] and Henry 7312 are *C. bodinieri* var. *giraldii* (Hesse) Rehd., the former probably being the type collection; Liang 62267 and C. Wright s.n. [Hong Kong] are *C. brevipes* (Benth.) Hance; Sindhipongse 76 [Herb. Roy. Forest Dept. 6020] is *C. candicans* var. *sumatrana* (Miq.) Moldenke; Mearns & Hutchinson 4755 is *C. caudata* Maxim.; Cuming 1330 is the type collection of *C. dolichophylla* Merr.; Ramos & Edaño s.n. [Herb. Philip. Bur. Sci. 28513] is *C. formosana* var. *glabrescens* Moldenke; H. H. Bartlett 6936 & 8603, Bartlett & La Rue 419, Boea 6508, 9049, 9396, & 9549, Clemens & Clemens 3029 & 3481, Mrs. D. J. Collins 2365, Gebruik 81, Hamel & Toroës 1165, M. R. Henderson 19633 & 20491, Herb. Hort. Bot. Bogor. XV.KA.45.3, Loeb 91, F. A. McClure 3195 [Herb. Canton Chr. Coll. 9743], Native Collector 273, Nur 18835 & 32651, G. E. Perry 5228, Ramos & Edaño s.n. [Herb. Philip. Bur. Sci. 44064 & 44326], Saimoendt 20, U. Singh 81, Toroës 164 & 3002, D.

D. Wood 785, and H. S. Yates 653, 1486, & 1604 are all C. longifolia f. floccosa Schau.; Liou 884 is C. longipes Dunn; R. C. Ching 7738, H. H. Chung 2477, and Nevin s.n. [China] are C. longissima (Hemsl.) Merr.; La Rue s.n. [Citrus Exp. Sta., Riverside] is C. macrophylla Vahl; W. W. Clark s.n. [Herb. Philip. Forest Bur. 2534] and Mearns & Hutchinson s.n. [May 1906] are C. merrillii Moldenke; Wilkes s.n. [Sulu Archipelago] is C. nigrescens Merr.; A. Forbes 21 and Hort. Huber 725 are C. pedunculata R. Br.; W. Kaudern 313 is C. pilosissima Maxim.; Schlagintweit 483 is C. rubella Lindl.; and D. D. Wood 1227 is C. superposita Merr.

The Hamel & Toroes 1165, Hollrung 817, Hoogland 3653, Native Collector 273, and D. D. Wood 785, cited below, are placed here tentatively. Some specimens of these collections are also cited under C. longifolia f. floccosa. These specimens were mostly annotated by me a considerable number of years ago, before my present concepts of the delimitations of these taxa had crystallized. The specimens need to be re-examined.

The Clemens & Clemens 3029 & 21090, Krukoff 4035, Mondi 23, G. E. Perry 5228, Toroes 164, C. Wang 35683, and R. S. Williams 2116 previously regarded by me as representing typical C. longifolia, and so annotated by me in some herbaria, seem actually to represent f. floccosa instead.

The Elmer 20102 & 20402 collections, cited below, actually show some of the lower leaf-surfaces more or less sparsely stellate, but this is usually only on the youngest leaves; the adult leaves are glabrate beneath, so I am retaining these two collections here under the typical form of the species. The Elmer 15336 and Lei 114 also seem to exhibit intermediate characters.

In all, 384 herbarium specimens, including type material of several of the names involved, and 5 mounted photographs have been examined by me.

Additional citations: PERU: Lima: R. Ferreyra 4076. MADAGASCAR: Bélangier s.n. (P). PAKISTAN: East Bengal: King's Collector 16 (W--369327), 173 (Bz--18039). INDIA: Assam: Belcher & Juan 54 (W--2212892); Chand 2198 (Mi), 2489 (Mi), 6274 (Mi), 6334a (Mi), 7677 (Mi); Jenkins s.n. (Bz--18036); Koelz 24215 (Mi), 27375 (Mi), 27378 (Ca--1343036, Mi); Prazer s.n. [1890] (Bz--18035). Delhi: Herb. Delhi Univ. 270 (Gg--413464). Khasi States: C. B. Clarke 14944 [599] (W--802505), 14948 [599] (W--802505), 17824c [600] (W--802663); Hooker & Thomson s.n. [Mont. Khasia] (N, S). Uttar Pradesh: Mani s.n. [15-10-49] (N); U. Singh 81 (Bz--18045, La, N). State undetermined: Thunberg s.n. (S, S); Wallich s.n. [Ind. or.] (T). BURMA: Tenasserim: Falconer 504 (Bz--18040, Bz--18042); Helfer 6038 (S, T). State undetermined: Mesbold 14076 (S), 17002 (S). ANDAMAN ISLANDS: South Andaman: Heinig s.n. [1898] (Bz--18041); Prain's Collector 27 (Na--19553). MERGUI ARCHIPELAGO: J. Anderson

s.n. [Mergui Archipelago, 1882] (W--261237). CHINA: Kwangsi: Ching 6394 (Ca--409949); Steward & Cheo 451 (S); Tsang 24001 (N). Kwangtung: F. A. McClure 3195 [Herb. Canton Chr. Coll. 9743] (Ph). Szechuan: Chien 6024 (Ca--1322552). CHINESE COASTAL ISLANDS: Hainan: Gressitt 964 (I); Herb. Canton Chr. Coll. 8036 (Gg--127985); F. C. How 72465 (Bz--18044); Lau 177 (B, Ca--525134, Mi, N, W--1629244); Lei 114, in part (B, Ba, Ca--612175, N); Liang 62267 (N), 66029 (Go, N); F. A. McClure s.n. [Herb. Canton Chr. Coll. 8036] (Bi, Ca--366338); Tak 100 [Herb. Lingnan Univ. 15599] (Ca--315700); C. Wang 32940 (N), 33354 (N), 34161 (N), 35999 (N), 36332 (N). THAILAND: Boonchuai 1125 [Herb. Roy. Forest Dept. 26399] (S); Bunnak 280 [Herb. Roy. Forest Dept. 9649] (Ss); Mrs. D. J. Collins 1667 (W--1701359); Kasin 395 (Bz--72835); K. Larsen 10267 (Lw); Larsen, Santisuk, & Warncke 3410 (Ac); Smitinand 1387 [Herb. Roy. Forest Dept. 7307] (Z); Suvarnakoses 841 [Herb. Roy. Forest Dept. 12939] (Sm); Thaworn 423 [Herb. Roy. Forest Dept. 14548] (Gg). INDOCHINA: Cambodia: Thorel s.n. [Paklai, Mekong] (Ca--38110). Tonkin: Balansa 3808 (W--2496752); Pételot 8700 (N); Rothé 25 (B). State undetermined: G. W. Groff 5783 (Ca--300192, Gg--31991); Pételot 1086 [Phy Ho] (Ca--227713). MALAYA: Penang: Wallich 1835.1 (M). Singapore: N. J. Andersson s.n. [28 Jan. 1853] (S); Herb. Schles. Bot. Tauschver. 25 (B). WESTERN PACIFIC ISLANDS: PHILIPPINE ISLANDS: Batan: H. H. Bartlett 15449 (Mi), 15502 (Mi). Cebu: M. Ramos s.n. [Herb. Philip. Bur. Sci. 11078] (Cm). Luzon: Ramos & Edaño s.n. [Herb. Philip. Bur. Sci. 28513] (W--1294195); Rivera & Duyag s.n. [Herb. Philip. Bur. Sci. 75008] (Ca--359450); Wöhler 76 (S). Mindanao: Elmer 13536, in part (Bi, N, Ut--33518). Negros: Elmer 10375 (Vt). Tawitawi: S. Olsen 833 (Cp). INDONESIA: GREATER SUNDA ISLANDS: Borneo: Amdjah 253 (Bz--17697), 553 (Bz--17685, Bz--17686), 619 (Bz--17687), 639 (Bz--17688); Boden Kloss 19112 (Bz--17691, Ca--346154); Burwalda 7895 (Bz--72860); Endert 1461 (Bz--72570), 1751 (Bz--72713), 5261 (Bz--72709); Haviland & Hose 5620 (V--405); Jaheri 1893 (Bz--17693, Bz--17694, Bz--17695); Rutten 571 (Ut--40834), 617 (Ut--41059); Soloh & Main 21812 (Bz--72985). Celebes: Bloembergen 4093 (Bz--18061), 4228 (Bz--18702), 4259 (Bz--18062); Kjellberg 397 (S), 725 (S); Racmat 588 (Bz--17946). Java: Altmann 415 (Bz--17719); Arain 19508 (Bz--17835), 19663 (Bz--17833, Bz--17834); Backer 173 (Bz--17840, Bz--17841), 572 (Bz--17721), 1058 (Bz--17806, Bz--17807), 2036 (Bz--17721, Bz--17722, Bz--25471), 7264 (Bz--17823), 9939 (Bz--17821, Bz--17822), 12317 (Bz--17771, Bz--17772), 12836 (Bz--17812, Bz--17813, Bz--17814), 14414 (Bz--17810, Bz--17811), 14986 (Bz--17720), 16201 (Bz--17838, Bz--

17839), 17261 (Bz--17815, Bz--17816, Bz--17817), 18810 (Bz--17843), 23387 (Bz--17809), 24016 (Bz--17824), 32673 (Bz--17724, Bz--17725), 32677 (Bz--17774), 32684 (Bz--17735, Bz--17736, Bz--17737), 32685 (Bz--17733, Bz--17734); Backer, Overeem, & Slooten 35169 (Bz--17744); Bakhuizen van den Brink 284 (Bz--17789), 1157 (Bz--18049), 2157 (Ut--24880a), 2643 (Bz--17776), 3170 (Bz--17732); Berger 548 (Bz--17728), s.n. [5-6-17] (Bz--17782); Beumée 726 (Bz--17858), 1897 (Bz--17845), 1946 (Bz--17857), 3606 (Bz--17846), 5297 (Bz--17847); Bruggeman 669 (Bz--17729); Burck & Monchy s.n. [Depot] (Bz--17780, Bz--17781); Buwalda 2761 (Bz--73012); E. Christophersen 53 (Bi); Collector undesignated 109 (Bz--17751, Bz--17752), s.n. (Bz--17848); Danser 6789 (Bz--17726); Docters van Leeuwen-Reijnvaan 730 (Bz--17849), s.n. [21 Januari 1911] (Bz--17739); Edeling s.n. (Bz--17836); Forbes 748 (Bz--17869, Bz--17870); Franck 1019 (W--2126077); H. Hallier 115 (Bz--17820), 115a (Bz--17818, Bz--17819, Ca--265965), 477 (Bz--17749, Bz--17750), s.n. [24.VIII.1896] (Bz--17745, Bz--17746, Ut--53165); Hochreutiner 723 (Ca--41175); Koorders 9705b [361*] (Bz--17887), 11075 [55*] (Bz--17906), 12154b (Bz--17897), 14926b [129*] (Bz--17896), 15241b [178*] (Bz--17894, Bz--17895), 20653b [1061*] (Bz--17886), 26277b [310*] (Bz--17898), 27104b [241*] (Bz--17903, Bz--25475), 30033b [1749*] (Bz--17882, Bz--17883), 30239b (Bz--17884, Bz--17885), 33957b [76*] (Bz--17905), 34041b [270*] (Bz--17904), 34351n [3875*] (Bz--17893), 44477 [452*] (Bz--18055); Kramer 333 (Bz--17853); Kuntze 4554 (N), 4763 (N), 5166 (N), 5971 (N, N); Monchy 11 (Bz--17829), 56 (Bz--17828); Ploem s.n. (Bz--17830, Bz--17831); Pulle 3119 (Ut--2429, Ut--2430); Rant 78 (Ut--30080); Sapiin s.n. [Poentjak] (Bz--17837); Scheffer s.n. [Batavia, 5 Oct. 1870] (Bz--17800), s.n. [Buitenzorg] (Bz--17798, Bz--17799), s.n. [Preanger] (Bz--17784, Bz--17786), s.n. [Tjibodas] (Bz--17805); Soegandiredjo 60 (Bz--17794, Bz--17795), 78 (Bz--17755), 194 (Bz--17754), 200 (Bz--17753), 256 (Bz--17756); Teijsmann 1338 H.B. (Bz--18031); Ultée 8 (Bz--17876), 35 (Bz--17731); Van Steenis 1855 (Bz--18064), 1926 (Bz--18063), 6943 (Bz--17718); Yates 3025 (Ca--343878, La, N); Zippelius 43 (Bz--17865), s.n. [Java] (Ca--918486); Zollinger 223 (S), 3181 (S). Kangean: Backer 27436 (Bz--17907, Bz--17908), 27925 (Bz--17909, Bz--17910, Bz--17911); Eguin "U" (Bz--17913, Bz--17914, Bz--17915, Bz--17916); Dommers 86 (Bz--17912). Karimandjaroa: Karta 392 (Bz--17918). Madura: Backer 19939 (Bz--17919). Riouw: Bünnemeijer 5824 (Bz--18018). Sabah: M. K. Clemens 10125 (Ph); Cuadra A.1007 (W--2210834); Elmer 20102 (Bi, Br, Bz--17689, Ca--22900, Du--168073, I, Ka--67224, N, S, Um--90, Ut--82684), 20402

(Bi, Br, Bz--17705, Ca--312126, Du--165464, N, S, Ut--84755); B. Evangelista 923 (N); Villamil 144 (Ph); D. D. Wood 855 [field no. 160] (Ph), 2529 (Ca--320252). Sarawak: Clemens & Clemens 21090 [field no. 5143] (Bz--17702, Bz--17703, N); Native collector 273 (Bz--17692), 1672 (Ca--214279), 1884 (Bz--17690), s.n. [Mt. Poi, 30.10.27] (Ca--357244). Singkep: Bunnemeijer 7230 (Bz--18013). Sumatra: Boeea 10109 (Ca--190626, N); Bunnemeijer 8063 (Bz--17976, Bz--58351); Buwalda 6661 (Bz--72568); Collector undesignated s.n. (Bz--17979); Diepenhorst 1338 H.B. (Ut--53395); Gusdorf 251 (Bz--17990); Hamel & Toroes 1165 (Bi); Iboet 150 (Bz--17964); Lütjeharms 3841 (Bz--18009), 4262 (Bz--18009); Voogd 187 (Bz--17975); Yates 1066 (Bz--17963). LESSER SUNDA ISLANDS: Bali: Sarip 40 (Bz--17920, Bz--17921). Sumbawa: Rensch 563 (Bz--17922). MOLUCCA ISLANDS: Buru: Teijsmann s.n. [Boeroe Kajeli] (Bz--17933). Timor Laoet: Buwalda 4316 (Bz--72566). MELANESIA: NEW GUINEA: Dutch New Guinea: Kanehira & Hatusima 11456 (Bz--18057); Royen 3004 (Ng--20213). Fergusson Island: Brass 27278 (N). Northeastern New Guinea: Floyd 7288 (Ng--16894); Fryar 3984 (Bi, Bz--72701, Ng--16852, Ng--16870); Hollrung 817 (Mb); Hoogland 5006 (Ng--8323); F. R. R. Schlechter 16453 (S). Papua: Brass 3969 (Bz--15058, N, W--1942992), 29348 (N, W--2390939). Province undetermined: Clemens & Clemens 1416 (Br, Br). BISMARK ARCHIPELAGO: Mussau: Køie & Olsen 1670 (Cp). New Hanover: Dissing, Køie, & Olsen 1908 (Ac, Cp). AUSTRALIAN REGION: AUSTRALIA: Queensland: C. T. White 8979 (N, N, N). CULTIVATED: Australia: Camfield s.n. [Port Jackson District, 11.1896] (Po--64816). Belgium: Herb. Hort. Thenensis II.691 (Br), II.805 (Br). California: Walther s.n. [Howard & Smith's Nursery, July 1921] (Gg--31992). France: Herb. Hort. Huber 798 (Io--30258). India: Herb. Hort. Bot. Calcutt. s.n. (Br, Bz--18034, Bz--18038, Ed, Ed, Mu--942, Mu--967, Mu--1160, N--photo, N--photo, T, X, X, Z--photo, Z--photo); Herb. Liebmann s.n. [h. Calcutt.] (Cp); Wallich 763 (Cp). Java: Bakhuizen van den Brink s.n. [Hort. Bot. Bogor.] (Bz--25479); Brugeman 53 (Bz--18065); Herb. Hort. Bot. Bogor. 164 (W--650966), s.n. (Bz--17713, Bz--18032); Herb. Tjibodas "U" (Bz--17710). Massachusetts: C. K. Schneider s.n. [Chenault 6622] (Ar--19788). New York: Teuscher s.n. [Boyce Thompson Arb.] (N). Peru: R. Ferreyra 8911 (Z). LOCALITY OF COLLECTION UNDETERMINED: Condes 21 (Bz--17851); Jameson s.n. (Ed, Ed); Monchy 11 [Kerawang] (Bz--17829), 56 [Kerawang] (Bz--17828).

CALLICARPA LONGIFOLIA f. FLOCCOSA Schau. in A. DC., Prodr. 11: 645, as C. longifolia β floccosa. 1847; Bakh. in Lam &

Bakh., Bull. Jard. Bot. Duitenz., ser. 3, 3: 26. 1921.

Synonymy: Callicarpa lanceolaria Roxb., Hort. Beng. [10], hyponym. 1814; Wall. in Roxb., Fl. Ind., ed. 1 [Carey & Wall.], 1: 409. 1820 [not C. lanceolaria Hort., 1821]. Callicarpa longifolia L. ex Wall. in Roxb., Fl. Ind., ed. 1 [Carey & Wall.], 1: 409, in syn. 1820 [not C. longifolia Benth., 1966, nor Diels, 1916, nor Hance, 1932, nor Hemsl., 1916, nor Hook., 1932, nor Lam., 1785, nor "sensu Hemsl.", 1939, nor "sensu L.", 1966, nor "sensu Mori", 1962]. Callicarpa albida Blume, Bijdr. Fl. Nederl. Ind. 14: 818. 1826. Callicarpa longifolia Roxb. apud J. A. & J. H. Schult., Mant. 3: 53, in syn. 1827. Callicarpa roxburghiana Schult. in J. A. & J. H. Schult., Mant. 3: 54. 1827. Callicarpa attenuata Wall., Numer. List [50], hyponym. 1829. Callicarpus oblongifolia Hassk., Cat. Pl. Hort. Bot. Bogor. Cult. Alt. 136. 1844. Callicarpa roxburghiana Roem. & Schult. ex Schau. in A. DC., Prodr. 11: 645, in syn. 1847. Callicarpa oblongifolia Hassk. ex Schau. in A. DC., Prodr. 11: 645, in syn. 1847. Callicarpa longifolia var. lanceolaria (Roxb.) C. B. Clarke in Hook. f., Fl. Brit. Ind. 4: 570. 1885. Callicarpa longifolia var. floccosa Schau. ex Kuntze, Rev. Gen. Pl. 2: 503. 1891. Callicarpa longifolia var. lanceolaria C. B. Clarke apud H. J. Lam, Verbenac. Malay. Arch. 87, in syn. 1919; Chopra, Badhwar, & Ghosh, Poison. Pl. India 2: 696, fig. 175. 1965. Callicarpa longifolia Auct. ex Backer & Bakh., Fl. Java 2: 601, in syn. 1965.

Bibliography: Roxb., Hort. Beng. [10]. 1814; Wall. in Roxb., Fl. Ind., ed. 1 [Carey & Wall.], 1: 409 & 481. 1820; Blume, Bijdr. Fl. Nederl. Ind. 14: 818. 1826; J. A. & J. H. Schult., Mant. 3: 53--54. 1827; Wall., Numer. List [50]. 1829; Hassk., Cat. Pl. Hort. Bot. Bogor. Cult. Alt. 136. 1844; Schau. in A. DC., Prodr. 11: 645. 1847; Benth. & F. Muell., Fl. Austral. 5: 57. 1870; C. B. Clarke in Hook. f., Fl. Brit. Ind. 4: 570. 1885; Watt, Dict. Econom. Prof. India 2: 27. 1889; Kuntze, Rev. Gen. Pl. 2: 503. 1891; Prain, Bengal Pl., pr. 1, 827. 1903; King & Gamble, Journ. Roy. Asiat. Soc. Bengal 74 (2), extra no., 807--808. 1908; H. J. Lam, Meded. Rijksherb. Leiden 37: 32. 1914; H. J. Lam, Verbenac. Malay. Arch. 71, 87, [361], & 362. 1919; Bakh. in Lam & Bakh., Bull. Jard. Bot. Duitenz., ser. 3, 3: 26--27. 1921; H. J. Lam in Lauterb., Engl. Bot. Jahrb. 59: 90. 1924; A. W. Hill, Ind. Kew. Suppl. 9: 45. 1938; A. L. & H. N. Moldenke, Pl. Life 2: 79. 1948; H.-T. Chang, Act. Phytotax. Sin. 1: 280, 291, & 311. 1951; Moldenke, Phytologia 4: 121--124. 1952; Moldenke, Inform. Mold. Set 51 Spec. 2. 1956; Moldenke, Résumé 174, 175, 177, 179, 182, 186, 187, 189, 191--194, 196--198, 200, 202, 213, 245, & 444. 1959; Moldenke, Résumé Suppl. 3: 20, 23, & 24. 1962; Chopra, Badhwar, & Ghosh, Poison. Pl. India 2: 696, fig. 175. 1965; Backer & Bakh., Fl. Java 2: 601. 1965; Rao & Rabha, Bull. Bot. Surv. India 8: 301. 1966; Tingle, Check List Hong Kong Pl. 37. 1967; Moldenke, Résumé Suppl. 15: 10--13. 1967; Moldenke, Phytologia 15: 15 (1967) and

16: 371, 373, & 388. 1968; Deb, Sengupta, & Malick, Bull. Bot. Soc. Bengal 22: 199. 1968; Moldenke, Résumé Suppl. 16: 17 & 18. 1968; Stearn, Notes & Rec. Roy. Soc. Lond. 24: 84. 1969; M. A. Rau, Bot. Surv. India 10, Suppl. 2: 61. 1969; Moldenke, Phytologia 21: 48 & 49. 1971.

Illustrations: Chopra, Badhwar, & Ghosh, Poison. Pl. India 2: fig. 175. 1965.

This form differs from the typical form of the species in having the branches and branchlets more or less densely flaccid or canescent-tomentose or canescent-furfuraceous with branched hairs, the petioles densely tomentose or furfuraceous, the leaf-blades more or less densely stellate-furfuraceous or hoary beneath, the peduncles and pedicels densely canescent-furfuraceous or flavescent-tomentose, the bractlets pubescent, the calyx more or less densely pubescent or granulose-puberulent, the ovary densely granular-pulverulent, and the fruiting-calyx varying from densely puberulent to lightly pulverulent.

Schauer's original (1847) description of this taxon is as follows: "*P. floccosa*, ramulis cum inflorescentiae ramis calyce foliorumque reti floccoso-tomentosis, foliis adultis superâ paginâ glabratis inferâ vero floccis stellaribus sparsis nunc rarioribus nunc crebrioribus indutis quin subcinereo-tomentosis. -- In Indiâ orientali, in insulâ Prince of Wales (Roxb. Wall.!), ad Singapur (Gaud.!), in Javâ (Thunb.! Blume! Jungh.!), in Manillâ (Gaudich.!), in N. Hollandiâ tropicâ (R. Br.). *C. longifolia* Roxb.! flor. ind. 1 p. 394, et *C. acuminata* Roxb. *ibid.* ex descr. *C. Roxburghiana* Roem. et S. syst. mant. p. 54. *C. attenuata* Wall. cat. 1835! *C. adenanthera* R. Br. prodr. fl. nov. holl. 1 p. 369 (ex diagnosi). *C. oblongifolia* Hassk. hort. bogor. p. 136. *C. albida* Blume! bijdr. p. 818 (forma fol. lanceolatis angustioribus). Haec forma, priori continuâ serie varietatum indumenti connexa, ceterum ab illâ nec habitu nec characteribus differt."

The *C. acuminata* Roxb., which Schauer includes in the synonymy of this form, is actually a synonym of *C. nudiflora* Hook. & Arn., while the *C. adenanthera* R. Br., which he also includes here, is a synonym of *C. candicans* (Burm. f.) Hochr. His Australian record must therefore be discounted and the R. Brown collection removed from the list of cotype collections which typify the trinomial.

Recent collectors describe the plant as a bush, subshrub, or small to tall shrub, 1--5 m. tall, or rarely a small tree, 8--15 m. tall, the trunk usually only about 2 cm. in diameter, but sometimes attaining a girth of 12.8 cm., the leaves dark-green above, pale-green beneath, the flowers pubescent, buds green, anthers yellow, and the fruit green when young, white when mature [or "purple" on Wang 36335, probably an error in transcription]. It has been found in forests, dense or open forests, primary or secondary forests, evergreen forests or light woods, forests near boulder creeks, secondgrowth jungles, thickets, open thickets, etc.